

REMARKS

Following entry of the above amendment, claims 1-16 are pending. Claims 7-12 are withdrawn as being drawn to non-elected subject matter. Applicants have cancelled claim 4, add new claims 15-16, and amend claim 1, 2, 10, 13 and 14 to add clarity to the claims and to focus on particular embodiments of the invention. Support for the amendment and new claims is found in the specification as originally filed. See, for example, the claims as originally filed.

The Office Action states that the application should be reviewed for errors. Applicants respectfully note that the application has been generally reviewed for errors. However, should the Examiner have specific objections or notice specific errors, it is respectfully requested that the Examiner indicate such objections or errors so the Applicants can respond accordingly.

The Office Action suggests that Applicants place the Application Serial Number on every page of claims and/or amendments filed. Applicants are unaware of any such requirement by the Office. However, for the convenience of the Examiner, Applicants have placed the Application Serial Number in the upper right hand corner of every page of this amendment and response, with the exception of the first page wherein it is clearly noted in the headings.

The Office Action states that the title of the invention is not descriptive and requires a new title. Applicants amend the title of the instant invention to more clearly describe the invention to which the claims are directed.

The Office Action states that claims 1-6 and 13-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully traverse the rejection.

Specifically, the Office action states that claim 1 is "vague, indefinite and confusing in that there is no clear correlation between the preamble ... and the step (a)." Applicants respectfully traverse the rejection. However, in order to further prosecution, Applicants amend claim 1. In light of the amendment, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office Action also states, not clearly in relation to any particular claim, that it is unclear that any enzyme "generates" a "carbohydrate-source" and that the terminology "acid fungal alpha amylase" does not appear to be art recognized. Applicants respectfully traverse the rejection. With respect to the phrase "carbohydrate-source generating enzyme," Applicants refer the Examiner to the specification as filed, on page 5 lines 23-34 and page 6 lines 1-4 wherein Applicants have clearly defined what is meant by the phrase "carbohydrate-source

generating enzyme.” With respect to the phrase “acid fungal alpha-amylase,” Applicants refer the Examiner to page 7 lines 1-27 and more specifically lines 17-20. Applicants respectfully submit that the meaning of the phrases “carbohydrate-source generating enzyme” and “acid fungal alpha-amylase” is readily apparent from the specification. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office Action states that claim 6 is vague, indefinite and confusing in “the recitation of ‘said fermentation step is part of a simultaneous saccharification and fermentation process,’ since a lag phase is required prior to enzyme addition and no clear carbon source is present prior to enzyme addition in this context.” Applicants respectfully traverse the rejection. The specification (see, for example page 2 lines 29-34, page 12 lines 29-34 and page 13 lines 1-6), discusses a SSF process. In the beginning of a SSF batch fermentation, a lag phase is introduced when the batch is inoculated with a fermenting organism. It is not clear to the Applicants why the Examiner finds the claim language confusing. Those skilled in the art know what an SSF process is and know what the lag phase of a fermenting organism is, thus know when the addition of a carbohydrate-source generating enzyme would be “after the lag phase of the fermenting organism.” The Examiner’s statement that there is “no clear carbon source” appears to be irrelevant. An SSF process is simply where saccharification and fermentation are carried out simultaneously rather than sequentially. For example, the Applicant’s Examples show that SSF can be carried out wherein the fermenting organism and the enzyme are added to the fermentation medium at the same time, or the fermenting organism and enzyme can be added at different times, such as when the fermenting organism is added to the fermentation medium first, and the enzyme is added later. In light of the aforementioned reasons, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office Action states that claim 4 is “internally inconsistent and confusing.” Applicants have cancelled claim 4, rendering the rejection moot. Applicants respectfully request withdrawal of the rejection.

The Office Action also states that the units [in claims 4, 13 and 14] cannot be readily ascertained. Applicants respectfully traverse the rejection. The units “AFAU” and “AGU” are clearly defined in the specification on pages 15 and 17-18, respectively. In light of the remarks, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office action states that claims 1-6 and 13-14 are “incomplete in the absence of a recovery step for the product produced” and further state that the “product must be isolated or recovered” hence the claims fail to particularly point out and distinctly claim the “complete” process since the recovery step is missing from the claims. Applicants respectfully traverse the rejection.

Claim 1 is directed to a process of producing a fermentation product wherein the process comprises a fermentation step, wherein said fermentation step comprises a number of elements. MPEP 2111.03 provides that the transitional term "comprising" is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) ("like the term 'comprising,' the terms 'containing' and 'mixture' are open-ended."). *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."). Thus, the suggestion by the Examiner that it would be expected from conventional preparation processes that the product must be isolated or recovered is irrelevant. The claim language does not exclude this step from being performed. As provided in MPEP 2173, the primary purpose of the requirement of definiteness of claim language is to ensure that the scope of the claims is clear so the public is informed of the boundaries of what constitutes infringement of the patent. The fact that there could be additional steps performed in the process does not make the claim indefinite, even if the likelihood is high that additional steps would be performed. The Examiner's assertion that "the claims fail to particularly point out and distinctly claim the 'complete' process" is immaterial as to whether or not the claim language is indefinite. The scope of the claim is clear as to a process of producing a fermentation product wherein the process comprises a fermentation step, wherein said fermentation step comprises: the particular elements as defined in the claims. In light of the remarks, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office Action states that claims 1, 2, 5-9 are rejected under 35 USC 102(b) as being anticipated by Oda et al. Applicants respectfully traverse the rejection. However, in order to further prosecution, Applicants amend claim 1, have canceled claim 4, and have added new claims 15-16. In light of the amendment, Applicants respectfully request reconsideration and withdrawal of the rejection.

The Office Action states that claims 1-6 are rejected under 35 USC 103(a) as being unpatentable over Oda et al. in view of Fujii et al., Lantero et al., Takeda et al., and Yoshizumi et al. Applicants respectfully traverse the rejection. Claim 1 includes the element that the carbohydrate source generating enzyme must be added after the lag phase of the fermenting organism. The Examiner concedes that the references differ from the claimed invention in the timing of the addition of the carbohydrate source generating enzyme is not particularly indicated. None of the references suggest that the timing of the addition of any of the enzymes is important in any of the processes taught. Further, there is no suggestion or indication in any of

the references or in the art in general that delaying the addition of the carbohydrate source generating enzymes until after the lag phase of the fermenting organism in a fermentation process would be beneficial. It is only the Applicants specification that teaches this advantage. Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness as required by MPEP 2142, and the obviousness rejection is merely conclusory. The combination and modification of the references cited is built on impermissible hindsight as the skilled artisan in the art would have no reason or motivation to combine and modify them. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). Furthermore, the burden is on the examiner to demonstrate the rationale or reason that one skilled in the art would combine and/or modify the references to arrive at the Applicants' invention. See, for example, MPEP 2143. Applicants respectfully submit that the Examiner has failed to establish such rationale or reason. Rather, the Examiner has simply concluded that the references can be combined and modifications can be made to arrive at the Applicants' invention. The only reason or rationale for combining and/or modifying the references originates in the Applicants' disclosure. MPEP 2142 provides that the use of Applicants' disclosure in this way is impermissible hindsight and it must be avoided. For the aforementioned reasons, Applicants respectfully request reconsideration and withdrawal of the rejection.

Applicants believe the present claims are in condition for allowance and such action is respectfully requested. Applicants believe that no other fees are due in connection with the filing of this paper other than those specifically authorized herewith.

Should any other fees be deemed necessary to effect the timely filing of this paper, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 50-1701.

The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

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